

An Introduction to Maternal Mortality

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Approximately 529,000 women die from pregnancy-related causes annually and almost all (99%) of these maternal deaths occur in developing nations. One of the United Nations' Millennium Development Goals is to reduce the maternal mortality rate by 75% by 2015. Causes of maternal mortality include postpartum hemorrhage, eclampsia, obstructed labor, and sepsis. Many developing nations lack adequate health care and family planning, and pregnant women have minimal access to skilled labor and emergency care. Basic emergency obstetric interventions, such as antibiotics, oxytocics, anticonvulsants, manual removal of placenta, and instrumented vaginal delivery, are vital to improve the chance of survival.

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In 1987, the international Safe Motherhood Conference convened in Kenya. The conference raised global awareness of the devastating maternal mortality rates in developing nations and formally established the Safe Motherhood Initiative. The goal was to reduce maternal mortality 50% by the year 2000, and announce to the global community the plight of the pregnant woman. Initially, donors, United Nations (UN) agencies, and governments focused on 2 strategies to reduce maternal mortality: increasing antenatal care and training for traditional

birth attendants. By the year 2000, the goal was far from realized. The global community reaffirmed its commitment in 2000, and the United Nations issued 8 Millennium Development Goals (MDG); the fifth goal (MDG-5) stipulated a reduction of the maternal mortality rate by 75% by 2015.¹

Scope of the Problem

Every minute a woman dies during labor or delivery. The highest maternal mortality rates are in Africa, with a lifetime risk of 1 in 16; the lowest rates are in Western nations (1:2800), with a global ratio of 400 maternal deaths per 100,000 live births.² The main causes of death are postpartum hemorrhage (24%); indirect causes such as anemia, malaria, and heart disease (20%); infection (15%); unsafe abortion (13%); eclampsia (12%); obstructed labor (8%); and ectopic pregnancy, embolism, and anesthesia complications (8%) (Figure 1). Forty-five percent of postpartum deaths occur within the first 24 hours and 66% occur during the first week. Of

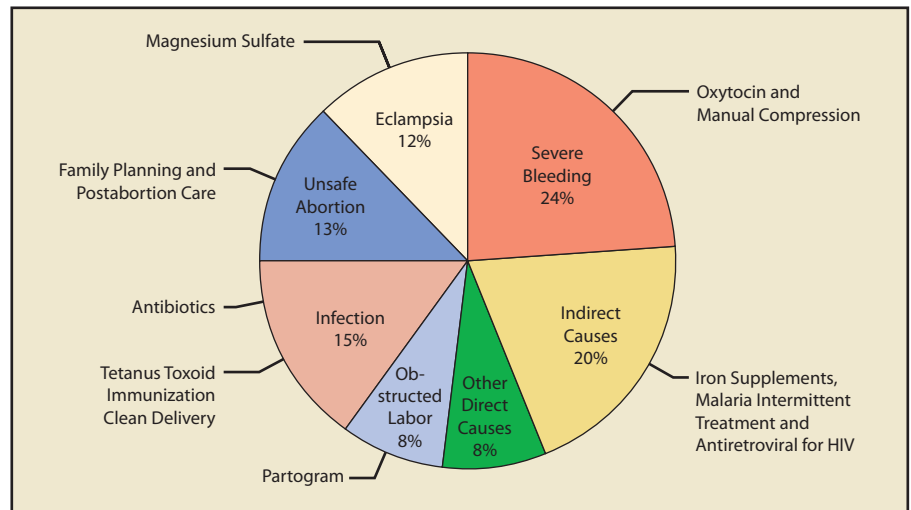


Figure 1. Evidence-based interventions for major causes of maternal mortality. Other direct causes include ectopic pregnancy, embolism, and anesthesia-related complications. Indirect causes include anemia, malaria, and heart disease. Reproduced from USAID From the American People. Maternal and Child Health Web site. http://www.usaid.gov/our_work/global_health/mch/mh/techareas/maternal_mortality.html.

partum, recognizing an emergency is not easy. Most births occur at home with unskilled attendants, and it takes skill to predict or prevent bad outcomes and medical knowledge to diagnose and immediately act on complications. By the time the lay midwife or family realizes there is a problem, it is too late.

fragile health-care facilities may not have the technology or services necessary to provide critical care to hemorrhaging, infected, or seizing patients. Omissions in treatment, incorrect treatment, and a lack of supplies contribute to maternal mortality.

Interventions to Reduce Maternal Mortality

Evidence-based interventions for reducing maternal mortality strategically target the main causes of death (Figure 1). The consensus among international organizations is that quality care requires services throughout a woman's reproductive life. These organizations design programs that focus on improving outcome during the intrapartum/postpartum period, offering family planning services, providing safe abortions, and increasing antepartum care.

Intrapartum and Postpartum Period

Interventions focused on the intrapartum period have been implemented. For example, efforts to address or treat postpartum hemorrhage and infection at health-care facilities have been made by providing

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the estimated 211 million pregnancies, 46 million result in induced abortions. Sixty percent of these abortions are unsafe and cause 68,000 deaths annually.²

The 3 Delays

Maternal mortality in resource-poor nations has been attributed to the "3 delays": delay in deciding to seek care, delay in reaching care in time, and delay in receiving adequate treatment.³ The first delay is on the part of the mother, family, or community not recognizing a life-threatening condition. Because most deaths occur during labor or in the first 24 hours post-

The second delay is in reaching a health-care facility, and may be due to road conditions, lack of transportation, or location. Many villages do not have access to paved roads and many families do not have access to vehicles. Public transportation (or animals) may be the main transportation method. This means it may take hours or days to reach a health-care facility. Women with life-threatening conditions often do not make it to the facility in time.

The third delay occurs at the health-care facility. Upon arrival, women receive inadequate care or inefficient treatment. Resource-poor nations with

oxytocics and antibiotics, manual removal of the placenta, blood transfusion, and if needed, hysterectomy.⁴ Health-care facilities are more familiar with eclampsia prevention treatment using anticonvulsants. Instrumented vaginal deliveries are encouraged and basic surgical equipment for cesarean deliveries is required.⁵ Because most women in developing nations deliver at home, organizations such as the World Health Organization, Institute of Medicine, World Bank, and the Lancet's Maternal Survival Steering Group prioritize professional skilled birth attendance at delivery.⁶ Studies have determined a direct relationship between having skilled birth attendants during labor and decreased maternal mortality ratios (Figure 2). Programs designed for home-based deliveries recommend skilled birth attendants carry emergency first aid

kits, and easy access to health facilities if labor becomes dysfunctional.

Family Planning

Donors, UN organizations, and governments have made great strides in promoting family planning and contraceptive use. Due to this effort, millions of maternal deaths have been prevented. However, contraceptive use in many resource-poor nations is still not at optimal levels. The overall lack of contraceptive access rate is 50%, with a low of 4% in Europe and high of 57% in countries in Africa.⁷ This lack of access to contraception leads to unwanted pregnancies, increased demand for abortions, and deaths related to unsafe abortions. Measuring maternal mortality requires that the mother be pregnant, so prevention of pregnancy makes it difficult to quantify how many deaths have been prevented. Nevertheless, if unwanted pregnancies are

prevented, data suggest that between 25% to 40% of maternal deaths could be eliminated.⁴

Safe Abortions

Given the high rate of maternal death due to unwanted pregnancies, some countries, such as South Africa, Tunisia, and Cape Verde, are recognizing the importance of developing wider access to safe abortions. In countries such as Mali, Sudan, Benin, and Burkina Faso, where legally, politically, and culturally access to abortion creates internal dispute, governments have allowed women access to safe abortions under specific circumstances, such as in cases of rape or fetal malformation. There are still some countries where women's access to safe abortions is nonexistent and medical communities face resistance when advocating policy change. Women who seek help may be ostracized.⁸

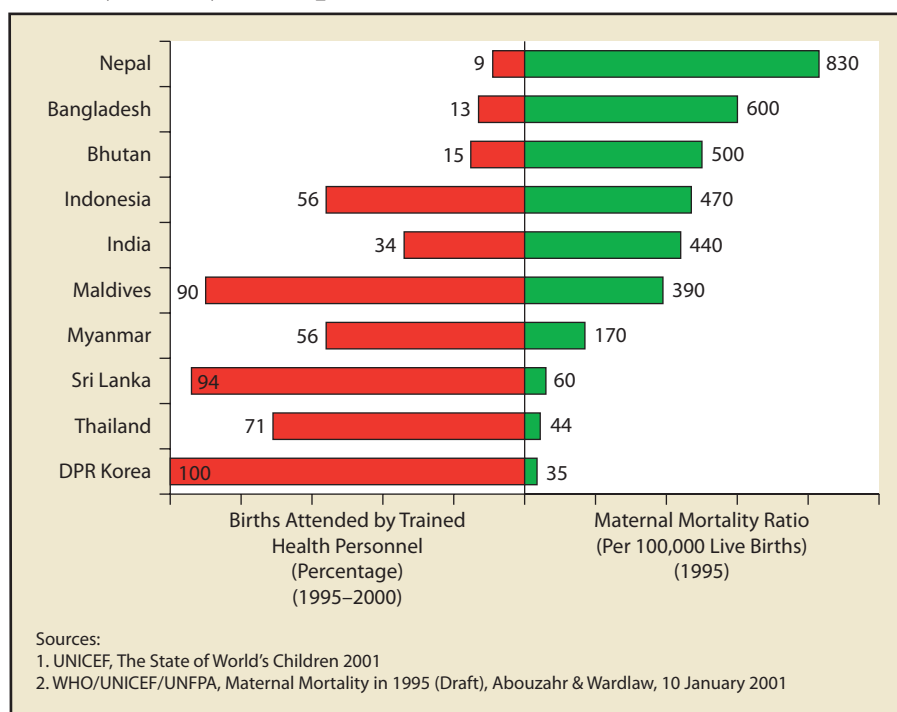
Antepartum Care

Following the Safe Motherhood Conference, a key action point was improving antepartum care in order to identify high-risk pregnancies. Although it seems logical that it should be a core component to maternal health, program evaluations demonstrate that antepartum care shows little impact on reducing maternal mortality.⁵ Screening tests during the antenatal period were found to be inefficient and to overwhelm referral health centers.⁴ Also, women offered free antenatal care did not necessarily use it because they felt that they were well and did not need to see a health-care provider.⁹ This does not disprove the need for antepartum care or its importance, but rather indicates that resources might be allocated elsewhere to make a greater impact on maternal mortality.

Other Challenges

Improving the health-care system overall is undoubtedly a critical

Figure 2. Relationship between maternal mortality ratio and proportion of births attended by trained personnel in the Southeast Asian region, by country, 1995. Reproduced from World Health Organization Regional Office for South-East Asia. Health & Evidence Information Web site. http://www.searo.who.int/EN/Section1243/Section1382/Section1386/Section1898_9257.htm.



component to reducing maternal mortality and improving the general health of a nation. However, accurately measuring the progress nations are making and evaluating programs is an unexpected challenge. Two-thirds of nations do not have the capacity to collect data, and data collection varies from country to country in both quantity and quality.¹⁰ Civil reg-

zations are starting to advocate and engage their political leaders.¹³

Conclusions

One of the most effective methods of bringing about health changes is for governments to prioritize them. Political commitment to decreasing maternal mortality is vital to the success of programs. Governments that have

practitioners are being trained to perform cesarean sections and administer anesthesia. And those successful programs are being implemented elsewhere.¹⁵ It is already evident that reaching the MDG-5 in some countries will be impossible; however, making great strides in reducing maternal mortality is crucial. ■

Countries such as Bolivia, Brazil, China, Egypt, Morocco, and Peru have made good progress toward achieving the fifth Millennium Development Goal.

istration of documented death is the most reliable datum for measuring maternal mortality, and yet, even if it exists, its accuracy is questionable. Maternal deaths are underreported.¹¹ Another challenge is the lack of clear consensus regarding the best practices for technical intervention and the lack of commitment from ministries of health.¹² Although a general consensus should be reached by donors and governments, country-tailored programs meeting context-specific causes can be designed for optimal success.⁹ Finally, political commitment to this issue varies. While the international community focuses on country progress of the MDG, national health and professional organi-

made the MDG-5 a priority by providing leadership through human and financial resources have seen a reduction in their nations' maternal mortality. Countries such as Bolivia, Brazil, China, Egypt, Morocco, and Peru have made good progress toward achieving MDG-5.¹⁴ These governments have implemented successful programs that target all of the above-mentioned interventions and also stress the importance of empowering and educating women. Many have also focused on the infrastructure of their country by improving roads and providing transportation to health facilities. There are innovative programs that demonstrate great promise in which non-physicians and general

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Main Points

- Maternal mortality in resource-poor nations has been attributed to the "3 delays": delay in deciding to seek care, delay in reaching care in time, and delay in receiving adequate treatment.
- Programs focus on improving outcome during the intrapartum/postpartum period, offering family planning services, providing safe abortions, and increasing antepartum care.
- Accurately measuring the progress nations are making and evaluating programs is an unexpected challenge. Two-thirds of nations do not have the capacity to collect data, and data collection varies from country to country in both quantity and quality.
- Political commitment to decreasing maternal mortality is vital to the success of programs. Governments that have made the fifth Millennium Development Goal a priority by providing leadership through human and financial resources have seen a reduction in their nation's maternal mortality.

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